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CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009				
			EXAMINER LUKS, JEREMY AUSTIN	
			ART UNIT 2837	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5-6, 9, 11-12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408). Rutschmann teaches a power train control system (Figure 1) comprising: an engine (Figure 1, #1) including multiple cylinders (2, 4); a controller (6) selectively activating multiple cylinders (2, 4) to provide a desired power displacement (Col. 1, Lines 8-16); and an exhaust system having an exhaust passage (9), and supporting a valve (15) and an electrical actuator (Col. 3, Lines 50-51) selectively electrically actuated by said controller (6) to move said valve between multiple positions in response to said desired power displacement (Col. 3, Line 57-Col. 9, Line 39). Rutschmann fails to teach an exhaust muffler including a housing having an exhaust passage; and the valve and actuator supported by said housing and arranged in said exhaust passage movable between multiple positions for tuning said exhaust muffler; wherein an exhaust gas flows through said exhaust passage, with substantially all of said exhaust gas flowing through said valve in each of said multiple positions, said valve increasing a backpressure within said exhaust passage by increasingly blocking said exhaust passage with said valve; an electrical actuator supported by said housing,

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wherein said housing includes a main housing portion and an actuator mounting pipe extending exteriorly away from said main housing portion, and an inlet pipe extending exteriorly away from said main housing portion proximate and generally parallel to said actuator mounting pipe; wherein said exhaust passage includes a valve body supporting said valve with a shaft extending into said valve body and said valve secured to said shaft, said electrical actuator rotating said shaft to move said valve between said multiple positions; said electrical actuator actuating said valve between said multiple positions; and a rod is arranged transverse to said shaft; a position sensor detecting said multiple positions of said valve, said position sensor communicating to said controller, and wherein said controller determines a malfunction condition based upon information from said position sensor; wherein said exhaust passage is in fluid communication with a tuning chamber and said tuning chamber is in fluid communication with an outlet pipe carrying exhaust gas from a main housing portion.

Lawrence teaches an exhaust muffler (Figure 3) comprising a housing (Figure 16, #100); a valve (40) supported by said housing (100) and arranged in said exhaust passage (104) movable between multiple positions for tuning said exhaust muffler (Col. 8, Line 60-Col. 9 Line 3); and an electrical actuator (114) supported by said housing (100), said electrical actuator (114) actuating said valve (40) between said multiple positions; wherein said housing (Figure 26, #150) includes a main housing portion (160) and an actuator mounting pipe (80', 162) extending exteriorly away from said main housing portion (160), and an inlet pipe (156) extending exteriorly away from said main housing portion (160) proximate and generally parallel to said actuator mounting pipe (80', 162) an exhaust passage (Figure 16, #104) includes a valve body (102) supporting

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said valve (40) with a shaft (108) extending into said valve body (102) and said valve (40) secured to said shaft (108), said electrical actuator (114) rotating said shaft (108) to move said valve (40) between said multiple positions; and a rod (Examiner is referring to the shaft portion secured between gear #112 and electrical actuating motor #114) is arranged transverse to said shaft (108), and said electrical actuator (114) moving said rod generally linearly to rotate said shaft (108); and wherein said exhaust passage (104) is in fluid communication with a tuning chamber (26) and said tuning chamber (26) is in fluid communication with an outlet pipe (30) carrying exhaust gas from a main housing portion. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann, with the apparatus of Lawrence to provide an improved mounting configuration for the actuator. Lawrence fails to teach wherein an exhaust gas flows through said exhaust passage, with substantially all of said exhaust gas flowing through said valve in each of said multiple positions, said valve increasing a backpressure within said exhaust passage by increasingly blocking said exhaust passage with said valve; a position sensor determining said multiple positions of said valve; said position sensor communicating to said controller, wherein said controller determines a malfunction condition based upon information from said position sensor. Peube teaches wherein an exhaust gas flows (Figure 1, #7) through said exhaust passage (1), with substantially all of said exhaust gas (7) flowing through a valve (3) in each of multiple positions (Col. 4, Lines 41-43), said valve increasing a backpressure within said exhaust passage (1) by increasingly blocking said exhaust passage (1) with said valve (3); a position sensor (17b) detecting said multiple positions of said valve (14) (Col. 5, Lines 5-15), said position sensor (17b) communicating to said

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controller (16), wherein said controller (16) determines a malfunction condition based upon information from said position sensor (17b) (Col. 3, Line 66-Col.4, Line 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Peube to measure a physical quantity characteristic of the instantaneous flow rate of the gases to vary the energy loss of the gases flowing in the exhaust pipe.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 3 above, and further in view of Matsumoto (JP 2003161149 A).

Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Lawrence fail to teach at least one heat shield is arranged between said electrical actuator and said inlet pipe. Matsumoto teaches a heat shield (Figure 4, #72) outside of an inlet pipe (66), and when used in combination, between an inlet pipe and electrical actuator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Matsumoto in order protect the electrical actuator from damage due to the heat produced within the exhaust housing.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Tadokoro (4,926,636).

Rutschmann teaches a power train control system (figure 1) comprising an electrical actuator (Col. 3, Lines 50-51) actuating a valve (15) between said multiple positions. Rutschmann fails to teach an exhaust muffler including a housing having an exhaust passage; a valve supported by said housing and arranged in said exhaust passage

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movable between multiple positions for tuning said exhaust muffler; wherein an exhaust gas flows through said exhaust passage, with substantially all of said exhaust gas flowing through said valve in each of said multiple positions, said valve increasing a backpressure within said exhaust passage by increasingly blocking said exhaust passage with said valve; an exhaust passage including a valve body supporting said valve with a shaft extending into said valve body and said valve secured to said shaft, said electrical actuator rotating said shaft to move said valve between said multiple positions; and a rod is arranged transverse to said shaft, and said electrical actuator moving said rod generally linearly to rotate said shaft. Peube teaches wherein an exhaust gas flows (Figure 1, #7) through said exhaust passage (1), with substantially all of said exhaust gas (7) flowing through a valve (3) in each of multiple positions (Col. 4, Lines 41-43), said valve increasing a backpressure within said exhaust passage (1) by increasingly blocking said exhaust passage (1) with said valve (3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann, with the apparatus of Peube to measure a physical quantity characteristic of the instantaneous flow rate of the gases to vary the energy loss of the gases flowing in the exhaust pipe. Peube fails to teach an exhaust muffler including a housing having an exhaust passage; a valve supported by said housing and arranged in said exhaust passage movable between multiple positions for tuning said exhaust muffler; the exhaust passage including a valve body supporting said valve with a shaft extending into said valve body and said valve secured to said shaft, an actuator rotating said shaft to move said valve between said multiple positions; and a rod is arranged transverse to said shaft, and said actuator moving said rod generally linearly to rotate

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said shaft. Tadokoro teaches an exhaust muffler (Figure 28, #11A) including a housing (See Figure 29) having an exhaust passage (115A); a valve (117A) supported by said housing (See Figure 29) and arranged in said exhaust passage (115A) movable between multiple positions for tuning said exhaust muffler (111A); the exhaust passage (115A) including a valve body (Figure 29) supporting said valve (117A) with a shaft (118) extending into said valve body (Figure 29) and said valve (117A) secured to said shaft (118), an actuator (120A) rotating said shaft (118) to move said valve (117A) between said multiple positions; and a rod (120a) is arranged transverse to said shaft (118), and said actuator (120A) moving said rod (120a) generally linearly to rotate said shaft (118). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Tadokoro to provide stable connection between the actuator and valve.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Tadokoro (4,926,636) as applied to Claim 6 above, and further in view of Yashiro (5,739,483). Rutschmann, Peube and Tadokoro are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Tadokoro fail to teach wherein said housing includes a stop limiting travel of at least one of said rod and said shaft. Yashiro teaches a housing (Figure 2, #1) including a stop (19) limiting travel of a shaft (15). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Yashiro to better support the shaft and rod, increasing the durability of the valve mechanism.

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5. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 5 above, and further in view of Yashiro (5,739,483). Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Lawrence fail to teach wherein; said housing includes an actuator mounting pipe extending into a main housing portion, and a first bearing arranged on said actuator mounting pipe supports one end of said shaft and a second bearing arranged on said valve body supports another end of said shaft. Yashiro teaches wherein a housing (1) includes an actuator mounting pipe (Figure 1, #8) extending into a main housing portion (2), and a first bearing (Figure 2, #18) arranged on said actuator mounting pipe (8) supports one end of said shaft (15) and a second bearing (18) arranged on said valve body supports another end of said shaft (15). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Yashiro to better support the shaft and rod, increasing the durability of the valve mechanism.
6. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claims 1 and 14 above, and further in view of Tadokoro (4,926,636). Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann further teaches a powered electrical actuator. Rutschmann, Peube and Lawrence fail to teach a return spring biasing a valve to one of a multiple positions in the event of power loss of the electrical actuator. Tadokoro teaches teach a return spring biasing (Figure 1, #26b) a valve (25) to one of a multiple positions (Col. 6,

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Lines 5-22), and would be capable of doing so in the event of power loss of the electrical actuator described by Rutchmann when used in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutchmann as modified, with the apparatus of Tadokoro to return the valve to an open state in the event of a malfunction.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutchmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 5 above, and further in view of Douglas (5,290,974). Rutchmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutchmann, Peube and Lawrence fail to teach wherein said housing includes a main housing portion having at least one baffle supporting an outer shell with at least one of said at least one baffle and said valve body including locating features providing a desired orientation between said at least one baffle and said valve body. Douglas teaches a housing (Figure 4) including a main housing portion having at least one baffle (46) supporting an outer shell (44) with at least one of said at least one baffle (46) and said valve body (62) including locating features (50, 66) providing a desired orientation between said at least one baffle (46) and said valve body (62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutchmann as modified, with the apparatus of Douglas to provide a tab and notch alignment apparatus for an exhaust system which does not require the additional cost of aligning and welding steps during production.

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Response to Arguments

8. Applicant's arguments with respect to claims 1-9 and 11-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to electrically controlled in-muffler valves for use during cylinder deactivation are disclosed in the PTO-892.

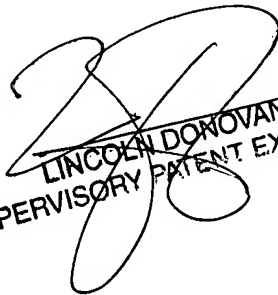
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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